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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,373	08/24/2001	Pieter Meijer	01851366	3906

7590 07/14/2005

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EXAMINER

SING, SIMON P

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,373

Applicant(s)

MEIJER ET AL.

Examiner

Simon Sing

Art Unit

2645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19 is/are allowed.
- 6) ☒ Claim(s) 1-10, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The replacement drawings were received on 04/28/2005. These drawings are accepted as informal drawings.

Claim Rejections - 35 USC § 103

2. Claims 1-10, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindenmeier et al. US 6,169,888 in view of Ohe et al. US 4,742,567.
 - 2.1 Regarding claim 1, Lindenmeier discloses a receiving antenna diversity system in figure 2, comprising:
 - a receiver 20 having an interference (multi-path) detector 18, which also includes a pulse (indicating signal 10) generator (column 3, lines 45-52);
 - an antenna device 21 including a plurality of FM antennas (A1, A2) and a controllable switching circuit 5 for sequentially switching through one of said plurality of antennas to the receiver via an antenna cable 12 upon receiving a control signal 26 (column 3, lines 31-4352-58); and
 - a differentiator (not shown) for differentiating a pulse (signal 10) into the signal 26 (column 3, lines 52-58).

Lindenmeier teaches that the signal 26 is pulse signal differentiated from a indicating signal 10, but fails to explicitly teach that the signal 26 is a pulse signal pair having a first signal pulse followed by a second signal pulse having a signal polarity opposite to the signal polarity of the first signal pulse, and the signal pair having a wave form varying symmetrically around a reference level.

However, it is obvious and well known in the art that when a rectangular pulse (such as a binary indicating signal 10) is differentiated, a signal pair is generated since a rectangular pulse has a rising edge (positive spike) and a falling edge (negative spike), and Ohe discloses an automobile antenna diversity system comprising a plurality of antennas 40 and 42, an antennal switch circuit 88, and a multi-path detector 70 in figure 6. Ohe teaches a signal differentiator 80 for differentiating a pulse 104 (third line of figure 7) into a pulse (spike) signal pair (fourth line of figure 7) having a first signal pulse followed by a second signal pulse having a signal polarity opposite to the signal polarity of the first signal pulse, and the signal pair having a wave form varying symmetrically around a reference level and having no DC signal energy.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lindenmeier's reference with the teaching of Ohe, so that the output of a differentiator would have comprised a pulse signal pair having a first signal pulse followed by a second signal pulse having a signal polarity opposite to the signal polarity of the first signal pulse, and the signal pair having a wave form varying symmetrically around a reference level and having no DC signal energy,

Art Unit: 2645

because such a modification would clarified Lindenmeier's teaching of the output of a differentiator.

2.2 Regarding claim 2, as discussed in claim 1, Lindenmeier teaches a differentiator to generate a pulse signal pair.

2.3 Regarding claim 3, it is old and well known in the art that a differentiator comprises a RL circuit (section 16-4, figure 16-4, Electronic Engineers' Handbook, McGraw-Hill Book Company, 1982).

2.4 Regarding claim 4, Lindenmeier teaches that the differentiator is coupled to a first RF (FM) blocking filter 13 (figure 2; column 4, lines 17-26).

2.5 Regarding claim 5, it is inherent that a blocking (shunt) filter 13 comprises a LC circuit having a resonance frequency corresponding to the central frequency of a received RF signal.

2.6 Regarding claim 6, Lindenmeier teaches a switching circuit 11 (detector) having an input coupled to the antenna cable 12 through a blocking second filter 13 and an output coupled to a selector switch 5 (figure 2; column 4, lines 31-36). It is inherent that a detector has a reference level, or threshold in order to detect an input signal.

Art Unit: 2645

2.7 Regarding claim 7, Lindenmeier teaches detecting a control signal and selecting an antenna based on the control signal (column 4, lines 31-38). Lindenmeier fails to teach that switching circuit 11 comprises a counter (counting device) at its output.

However, Ohe further teaches a counter between a pulse signal pair detector 82 and an antenna switch 88 for selecting a desirable antenna (figure 6; column 6, lines 51-68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Lindenmeier's reference, which was modified by Ohe, with the further teaching of Ohe, so that the switching circuit 11 would have comprised a counter and the output of the counter would have generated a control signal for selecting an antenna, and because such a modification would clarified Lindenmeier's teaching of how the output of switching circuit was generated from an input control signal.

2.8 Regarding claim 8, signal selecting circuit 13 is a blocking filter for blocking received RF signal going to switching circuit 11 (column 6, lines 17-26).

2.9 Regarding claim 9, it is inherent that a blocking (shunt) filter 13 comprises a LC circuit having a resonance frequency corresponding to the central frequency of a received RF signal.

Art Unit: 2645

2.10 Regarding claim 10, adding a component to a circuit would have been a matter of design choice, since adding a choke (inductor) between a power supply line and a RF circuitry for preventing RF signal get into the power supply line in order to reduce spurious signals are well known in the art.

2.11 Regarding claim 20, the system in claim 1 is part of a receiver (there are additional circuits, such as RF pre-amplifier, IF filters and amplifier, and audio amplifier, etc.).

2.12 Regarding claim 21, the system in claim 1 is part of an antenna device for supplying a selective RF signal to a receiver.

Allowable Subject Matter

3. Claims 11-19 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter.

4.1 Claim 11: The current invention discloses a multi-antenna receiver system, comprising a plurality of FM antennas and a single AM antenna. An AM signal compensation circuit located in an antenna portion has a first input coupled to a cable

connecting the antenna portion to a receiver, a second input coupled to the AM antenna for compensating (canceling) AM signals to an output coupled to an antenna selecting circuit. Lindenmeier fails to teach an AM antenna compensation circuit. Taniguchi et al (US 5,263,190) discloses a receiver system with AM antenna 31 and FM antennas 21 and 22 in figure 2. Taniguchi teaches a switch 23 for selecting one of the FM antennas but fails to teach an AM compensation circuit.

4.2 Claims 12-19 would be allowed for being dependents of claim 11.

Response to Arguments

5. Applicant's arguments filed on 04/28/2005 have been fully considered but they are not persuasive.

The applicant argues that the pulse signal of Lindenmeier has a DC signal for triggering an antenna selecting circuit. However, modified Lindenmeier teaches a differentiated pulse signal which obviously has a pulse pair comprising upward pulse (on a rising edge of a input signal) and a downward pulse (on a falling edge of a input signal), and the pulse pair has no DC signal energy since it has a very short pulse duration (like a spike). As for triggering, a digital circuit is triggered by a rising edge (or a falling edge) of a pulse, not by DC signal energy. If triggering is by DC signal energy, then the pulse pair of current invention would also have DC signal energy since it triggers a detector 16 to produce a control pulse as shown in figure 1 and described in lines 5-8 on page of the Specification.

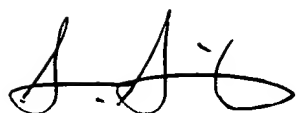
Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Simon Sing whose telephone number is 571-272-7545. The examiner can normally be reached on Monday - Friday from 8:30 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang, can be reached at 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 (571-273-8300 after 7/15/2005). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Art Unit: 2645

A handwritten signature in black ink, appearing to be 'S. Sing', with a stylized, cursive script.

S. Sing

07/07/2005

A handwritten signature in black ink, appearing to be 'Fan Tsang', with a stylized, cursive script.

FAN TSANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600